2004 ADDENDUM TO THE

COLORADO RIVER SALINITY CONTROL PROGRAM

Big Sandy Unit

2004 Monitoring and Evaluation Report

I. INTRODUCTION

1. Executive Summary

Objectives of the Big Sandy Unit of the Colorado River Salinity Control Program include: treatment of 15,700 acres with improved irrigation systems; reduction of salt loads by 52,900 tons/year; conservation of 20,470 acre-feet of water; hayland production increases from 1.6 tons/acre to 4 tons/acre; and replacement of any wetland wildlife values foregone estimated at 860 acres of Type 3, 4, and 10 wetlands (USFWS Circ. 39). To date 10,860 acres have been treated with over 98% of the acres being converted from flood irrigation to pivot sprinkler irrigation. This has resulted in prevention of 16,860 acre-feet of deep percolation. The original goal for treatment was 15,700 acres and our current treatment level is 69.2% of the original goal. This treatment has led to a salinity reduction of 42,604 tons/year, or 80% of the original goal. The reason for the higher percent of the salinity goal is the application of center pivots that have resulted in higher efficiency and less deep percolation than anticipated in the plan. Economic studies and anecdotal information from producers indicate that production indeed has increased as predicted on the acreage where irrigation improvement has occurred. Wetland wildlife values had been replaced in current and proportionate amounts through 2000 with the exception of one wetland type. It is anticipated that this replacement has continued and has been appropriate for the impacts caused by the project. However, this is not known for certain but is based on the fact that up through the year 2000 the majority of work that has been done had been done prior to the 200 report. I.e. 10,000 of the treated 10,860 acres were done prior to 2001 when the first supplemental M and E report was amended to the 2000 M and E report. From 2001 forward there has been an additional 1000 acres or so implemented and few if any of these impacted or took in native sagebrush land. During that time an additional 5 acres of pond habitat has been developed and about 15 acres of grassland seeded in corners. The NRCS lost its habitat biologist following the 2000 M and E report. Limited projects have been established since this time and quantification of their effects to habitat has not totally been completed. NRCS has done spot checks of habitat and feels that the trend for habitat replacement continues and has kept pace with what has been affected. NRCS will conduct a thorough evaluation of habitat changes from its 2001-2004 projects during the summer of 2005 and report this finding in its 2005 report. Two acres of wetland habitat (open water) were installed in 2004. Three acres of upland habitat were installed in 2004.

Cost-effectiveness. The cost per ton of salt saved for fiscal year 2004 was calculated by using the following formula:
FA ($51,000) + TA ($51,000 * 0.67) = total federal expenditure ($85,170) * 25 year amortization (.07546) = Total Annual Cost ($6,496.93) dived by total Annual Salt Saved (90 Tons) = Cost/Ton of Salt Saved ($71.41)

Contract activity. All open contracts show evidence of activity.

Irrigation Erosion Control. Projects that show erosion control benefits are rewarded using the Local Work Group's Ranking Worksheet.

Educational Program. No change from 2001 Monitoring and Evaluation Report.

Monitoring and Evaluation Report. No active monitoring, as per the original M and E plan, other than the shallow well measurements were conducted during 2004. NRCS is working with USGS to establish a contract to do analysis of data collected by well monitoring, stream gauge and water quality data since the inception of the program.

NRCS ran 33 efficiency tests for sprinkler systems in the Big Sandy Project area. The report on this

monitoring is to be sent under separate cover to the Forum work group in June.

II. WETLAND AND WILDLIFE EFFECTS

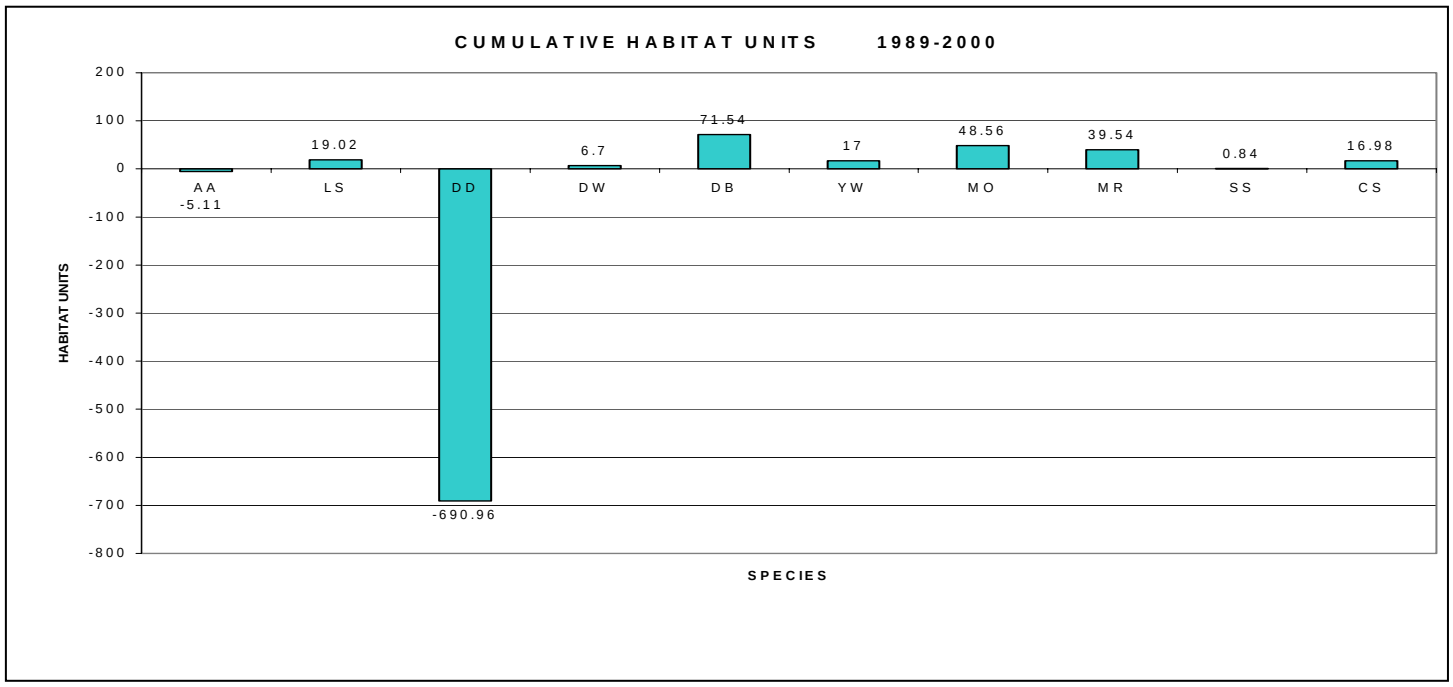
Two wildlife projects: 1) creation of open water wetland was established and 2) 15 acres of grass and forbs were planted. No wildlife projects were planned in 2004.

The following is included from the 2000 monitoring report for reference. We have not redone this part of the report since this date although we have reported in our addendums replacement of wildlife habitat. It is the intention of the NRCS to do a full accounting of habitat in the summer of 2005 and to work with USFWS this summer to update this and to see what needs to be completed to keep current. We have a Request for Proposal out for assistance from a Wildlife Biologist for this work and anticipate the work be completed by September 30 of 2005.

1. Habitat Evaluation Procedure Analysis

In 1996, the U.S. Fish and Wildlife Service (FWS), Wyoming Game and Fish Department (WGFD) and the NRCS funded a Habitat Extension Biologist position for the salinity project. This was in order to continue the HEP analysis and to provide technical and cost share assistance to landowners interested in voluntarily working on wildlife habitat projects within the Salinity Project area.

Starting in 1997, new HEP analysis software (from 1995) was used to analyze contracts that were known to have conversions of grassland or shrubland cover types to hayland, and contracts with potential wetland impacts. Reasons for selective monitoring include time and staff constraints associated with monitoring 122 contracts and the concentration of monitoring efforts on the types of contracts that have impacted habitat types



since 1989.

Figure 3. Cumulative habitat units 1989-2000.

AA = Am. Avocet: LS = Lesser Scaup; DD = Dabbler Duck Drynest; DB = Dabbler Duck Brood DW = Dabbler Duck Wetnest; YW = Yellow Warbler; MO = Muskrat Open Water; MR = Muskrat Riverine; SS = Shelterbelt; CS = Common Snipe

2. Changes In Wetlands On-Farm

Wetlands are being tracked by type (using the Cowardin system) and by acres on-farm and off-farm. Impacts to wetlands on-farm are shown in Tables 6-8.

Palustrine aquatic bottom (PAB) wetlands have had losses of 0.4 acres. However, this has been offset by an 11.4-acre wetland creation and enhancement project constructed within the salinity project.

Approximately 71 acres of Palustrine emergent wetlands (PEM) have been lost. These losses are primarily wet meadows that receive less water when the water table is lowered after the conversion from flood irrigation to sprinkler irrigation occurs.
Currently, 84 acres of PEM wetlands have been created/enhanced and placed under long-term agreements to offset the 71 acres lost. These projects have consisted of construction of low-level dams to flood wet meadows with shallow water or fencing of existing wetlands to maintain and increase water tables and vegetation.

Palustrine open water (POW) wetland types have had no losses. Creation of 5.6 acres of POW has occurred after the construction of sprinkler regulating reservoirs. These have been designed and constructed with low-angle side slopes on at least one side to allow vegetation re-growth.

Palustrine scrub-shrub (PSS) wetlands have had estimated losses of 0.6 acres. This has occurred with the elimination of field ditches. 3 acres of PSS wetlands have been placed under long-term protection agreements to help offset losses.

Riverine type wetlands (RIV) have had losses of 13.4 acres. This has occurred through the filling of field ditches and drains to accommodate sprinkler pivots systems. Currently, approximately 7 acres of Riverine type wetlands have been placed under management plans to compensate some of the acres lost.

Table 1. Change in wetlands on all irrigation contracts by type and acres 1989-2000.

PAB	PEM	POW[1]	PSS	PUS	RIV[2]
-.4	-71.0	0.0	-0.6	0.0	-13.4

Table 7. Average change per contract by type and acres 1989-2000.

PAB	PEM	POW[1]	PSS	PUS	RIV[2]
-. 003	-.58	0.0	-.004	0.0	-.11

Table 8. Net change in wetlands (irrigation contracts combined with wetland projects) 1989-2000.

PAB	PEM	POW[1]	PSS	PUS	RIV[2]
+11.0	+13.0	+5.6	+2.4	0.0	-6.4

[1] = POW type wetlands have been created through construction of sprinkler regulating reservoirs with low angle side slopes, not all regulating reservoirs qualify as POW.
[2] = Riverine wetland type losses are field ditches and/or drains that have been filled in to accommodate sprinkler systems.

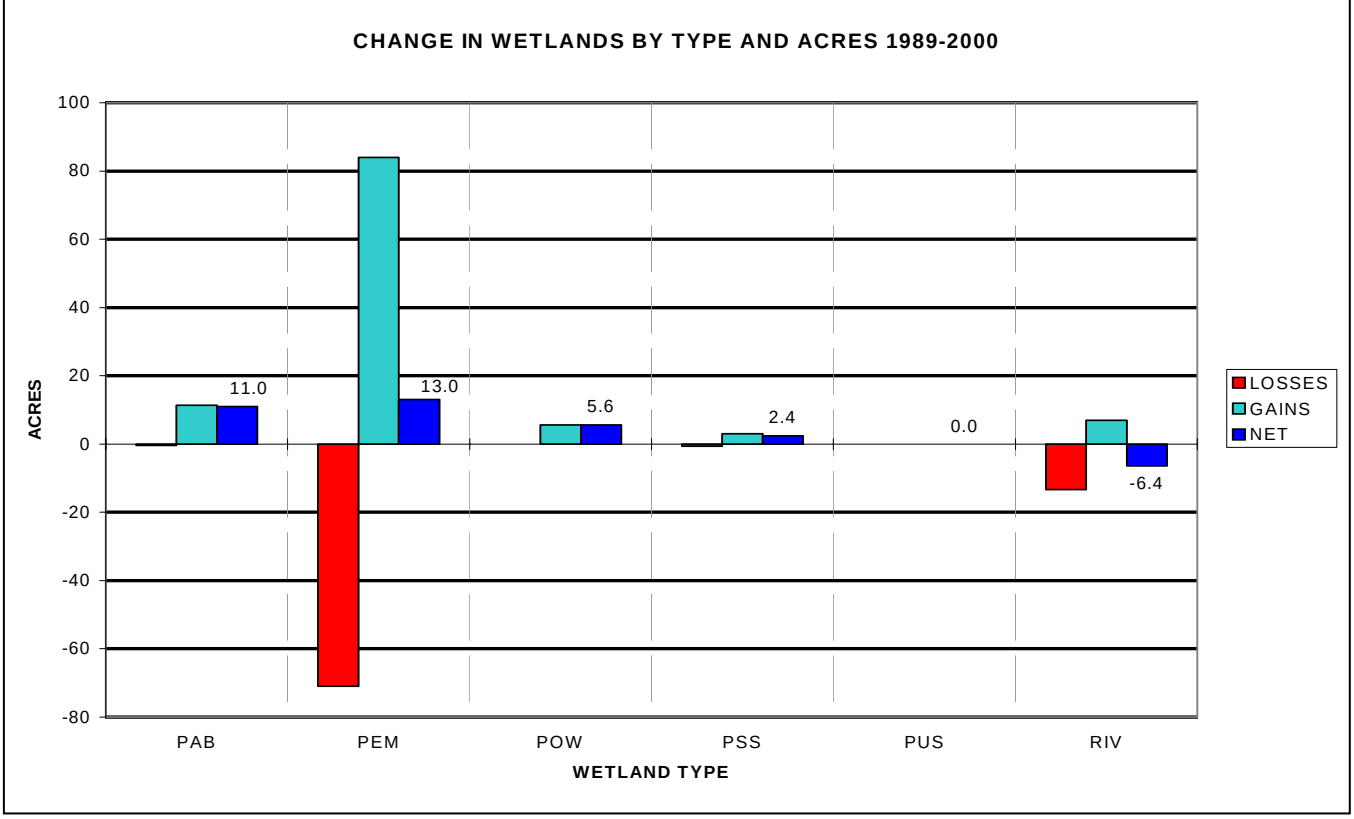


Figure 4. Change in wetlands by type and acres 1989-2000.

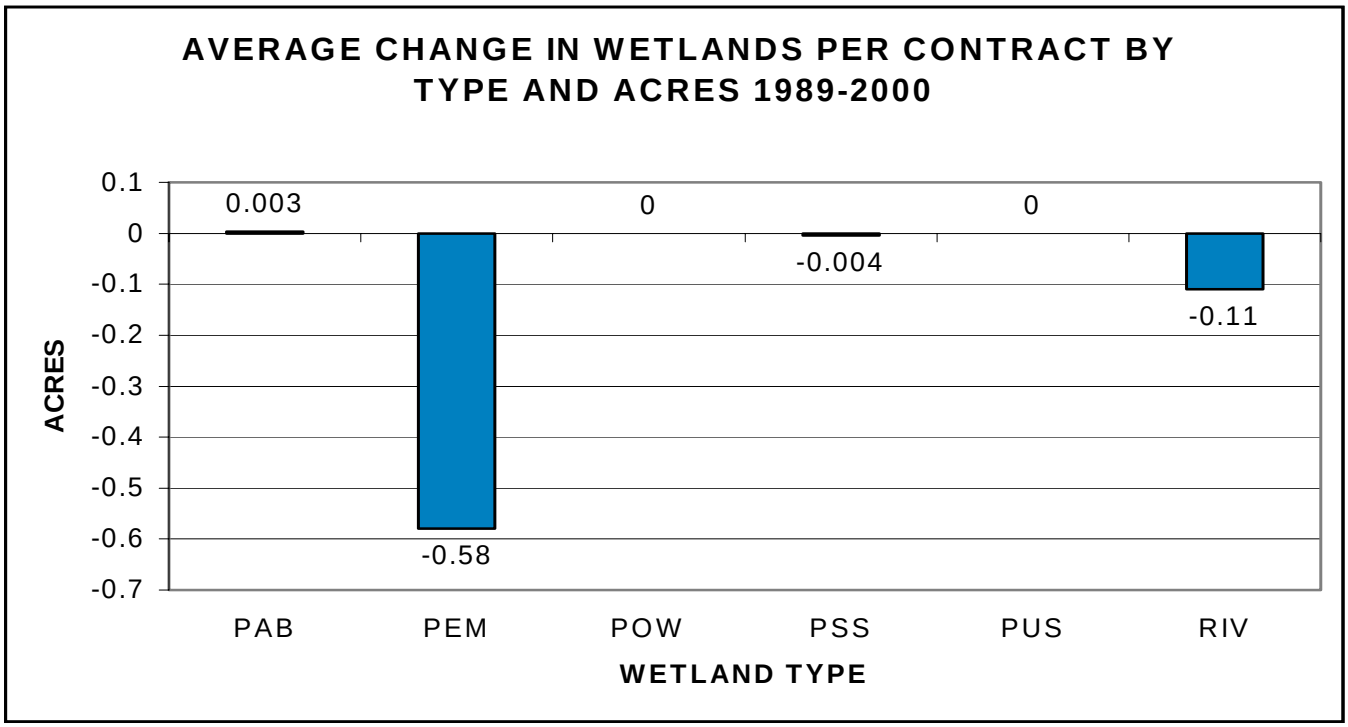


Figure 5. Average change in wetlands per contract by type and acres 1989-2000.

3. Permanent Wetland Transect Data Off-Farm

Six permanent vegetative transects were established at selected sites within the project area. These were established as means of monitoring changes in wetland vegetation and habitat after irrigation conversion has occurred. Baseline data was collected in 1989 and follow-up data was collected for the five remaining transects in 1999.

HEP analysis results from 1999 show an increase in habitat units since baseline data was collected in 1989. This is more likely a result of baseline data that was collected during an extended drought period. Since then, average to above average precipitation occurred throughout much of the 1990's.

Table 9. Permanent Wetland Transects –HEP Analysis results 1989-1999.

	AA	LS	DD	DW	DB	YW	MO	MR	SS	CS
1989 (BASELINE)	0.0	0.0	10.8	1.2	0.4	0.0	0.0	12.6	0.0	0.0
1999 (YEAR 10)	0.0	0.0	92.0	2.0	36.8	0.0	0.0	10.2	0.0	0.0
CHANGE	0.0	0.0	+82.8	+0.8	+36.4	0.0	0.0	-2.4	0.0	0.0

AA =American avocet; LS =lesser scaup; DD =dabbler duck drynest; DW =dabbler duck wetnest; DB =dabbler duck brood-rearing; YW =yellow warbler; MO =muskrat open water; MR =muskrat riverine; SS =shelterbelt; CS =common snipe

2. Overview and Methodology

The contents of this report are an addendum to the 2001 Monitoring and Evaluation Report for the Colorado River Salinity Control Program (CRSCP) - Big Sandy Unit.

4. Climate Conditions

The water supply for 2004 was about average. In general, spring was characterized by warm and wet conditions which allowed reservoir water to be stored longer. Irrigators on the project were somewhat limited during the later part of the irrigation year by water supply. There was adequate supply of irrigation water for most sprinkler irrigators and most flood irrigators. Water was turned into the canal system the 25th of May and the last irrigation occurred on the 25th of August. The irrigation district reported being able to deliver water to 14,718 acres with a total deliver of 34,000 acre feet of water in 2004.

6. Scope and Status of CRSC Program Implementation

At the end of the 2004 irrigation season there were a total of 144 improved irrigation systems installed and operating. Table 1 shows the status of program implementation.

Table 2. Program Implementation.

	Item / Practice	Unit(s)	Current FY	Cumulative
1.	Funding (TA & FA)	Dollar	85,170	11,574,223
2.	Acres under contract	Acres	30	11,900
3.	No. contracts	Number	2	149
4.	CRSC cost shared			
	A. Pipeline (on-farm)	Feet	2640	227,856
	B. Sprinkler system	Number	4	135
		Acre	191	10,860
	C. Improved surface system	Number	0	9
		Acre	0	188
	D. Regulating reservoirs	Number	2	64
		acre feet	3	81
5.	CRSC non-cost shared			
	A. Irrigation Water Management	Acre	525	10,860
6.	Wildlife Habitat Created			
	A. Wildlife wetland habitat management	Acre	2	125
	B. Wildlife upland habitat management	Acre	15	186